Souder, Miller & Associates♦201 S. Halagueno St.♦Carlsbad, NM 88220
(575) 689-8801

October 1, 2018

#5E27499-BG8

NMOCD District 2
Mr. Bratcher
811 S. First St
Artesia, New Mexico 88210

SUBJECT: Remediation Closure Report for the Red Light State Com 23 26 27 WA 15H Release (2RP-4764), Eddy County, New Mexico

Dear Mr. Bratcher:

On behalf of Marathon Oil Company (Marathon), Souder, Miller & Associates (SMA) has prepared this Remediation Closure Report that describes the remediation of a release of liquids related to oil and gas production activities at the Red Light State Com 23 26 27 WA 15H site. The site is in Unit A, Section 27, Township 23S, Range 26E, Eddy County, New Mexico, on State land. Figure 1 illustrates the vicinity and site location on an USGS 7.5 minute quadrangle map.

Table 1 summarizes release information and closure criteria.

Table 1: Release Information and Closure Criteria			
Name	Red Light State Com 23 26 27 WA 15H	Company	Marathon Oil Company
API Number	30-015-44491	Location	32.28176894, -104.27435190
Incident Number	2RP-4764		
Estimated Date of Release	5/6/2018	Date Reported to NMOCD	5/6/2018
Land Owner	State	Reported To	NMOCD
Source of Release	Gun Barrel		
Released Volume	29 bbls	Released Material	Produced Water
Recovered Volume	20 bbls	Net Release	9 bbls
NMOCD Closure Criteria	>100 feet to groundwater		
SMA Response Dates	7/24/2018, 8/29/2018		

1.0 Background

On May 6, 2018, due to operator error, approximately 29 barrels of produced water was released from the open discharge valve on the gun barrel. A majority of the spill, approximately 20 barrels, remained within the lined containment, and was collected via vac truck. Approximately 9 barrels were released onto the production pad due to overspray. This affected area was then scraped by production personnel. Figure 1 illustrates the vicinity and site location, Figure 2 illustrates the release location. The final C-141 form is included in Appendix A.

2.0 Site Information and Closure Criteria

The Red Light State Com 23 26 27 WA 15H is located approximately 8 miles south of Carlsbad, New Mexico on State land. As summarized in Table 2 and illustrated in Figure 1, depth to groundwater in the area is estimated to be greater than 100 feet below grade surface (bgs). There are no known water sources within ½-mile of the location, according to the New Mexico Office of the State Engineer (NMOSE) online water well database (https://gis.ose.state.nm.us/gisapps/ose_pod_locations/, and the USGS. The nearest surface water is Cass Draw located approximately 1.5 miles to the south.

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for a groundwater depth of greater than 100 feet bgs. Unless a deferral has been approved by NMOCD per 19.15.29.12.B.(2), the site has been restored to meet the standards of Table I of 19.15.29.12 NMAC. Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

3.0 Release Characterization Activities and Findings

On July 24, 2018, SMA field personnel assessed the spill and remedial actions performed before SMA's arrival. One sample location (L1) was collected at 1 foot bgs from the area of overspray on the west side of the battery. Five additional samples were collected (SW1-SW5) to laterally define the affected area. Soil samples were field-screened for chloride using an electrical conductivity (EC) meter.

A total of six samples were collected for laboratory analysis for total chloride using EPA Method 300.0; sample L1 was analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D. Table 3 summarized the laboratory results. Locations for all samples are depicted on Figure 2.

Laboratory samples were collected in accordance with the sampling protocol included in Appendix C. Samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix D).

Under previous NMOCD remedial guidelines, results indicated that an area approximately 20 feet by 20 feet by 1.5 feet deep had been impacted, and that further excavation within the scraped area was needed to reach the depth of contamination.

4.0 Soil Remediation Summary

On August 29, SMA returned to the site to guide the excavation of contaminated soil. After approval from area utilities via 811, SMA guided the excavation activities by collecting soil samples for field screening. Samples were screened for chloride using an electrical conductivity (EC) meter. The walls and base were excavated until field screening results indicated that the NMOCD closure criteria would be met.

On August 29, 2018, SMA conducted confirmation sampling of the walls and base of the excavation, which measured approximately 20 x 20 feet. The area around L1 and L2 was excavated to a depth of 1.5 feet bgs. Two confirmation samples (L1 and L2) were collected from the base of the excavation in accordance with the sampling protocol included in Appendix C.

Figure 2 shows the extent of the excavation and sample locations. Laboratory results are summarized in Table 3. Laboratory reports are included in Appendix D.

Contaminated soils were removed and replaced with clean backfill material to return the surface to previous contours. The contaminated soil was transported and disposed of at R360 near Hobbs, NM, an NMOCD permitted disposal facility.

5.0 Scope and Limitations

The scope of our services included: assessment sampling; verifying release stabilization; regulatory liaison; remediation; and preparing this closure report. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Austin Weyant at 575-689-8801 or Shawna Chubbuck at 505-325-7535.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Reviewed by:

Heather Patterson
Staff Scientist

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map
Figure 2: Site and Sample Location Map

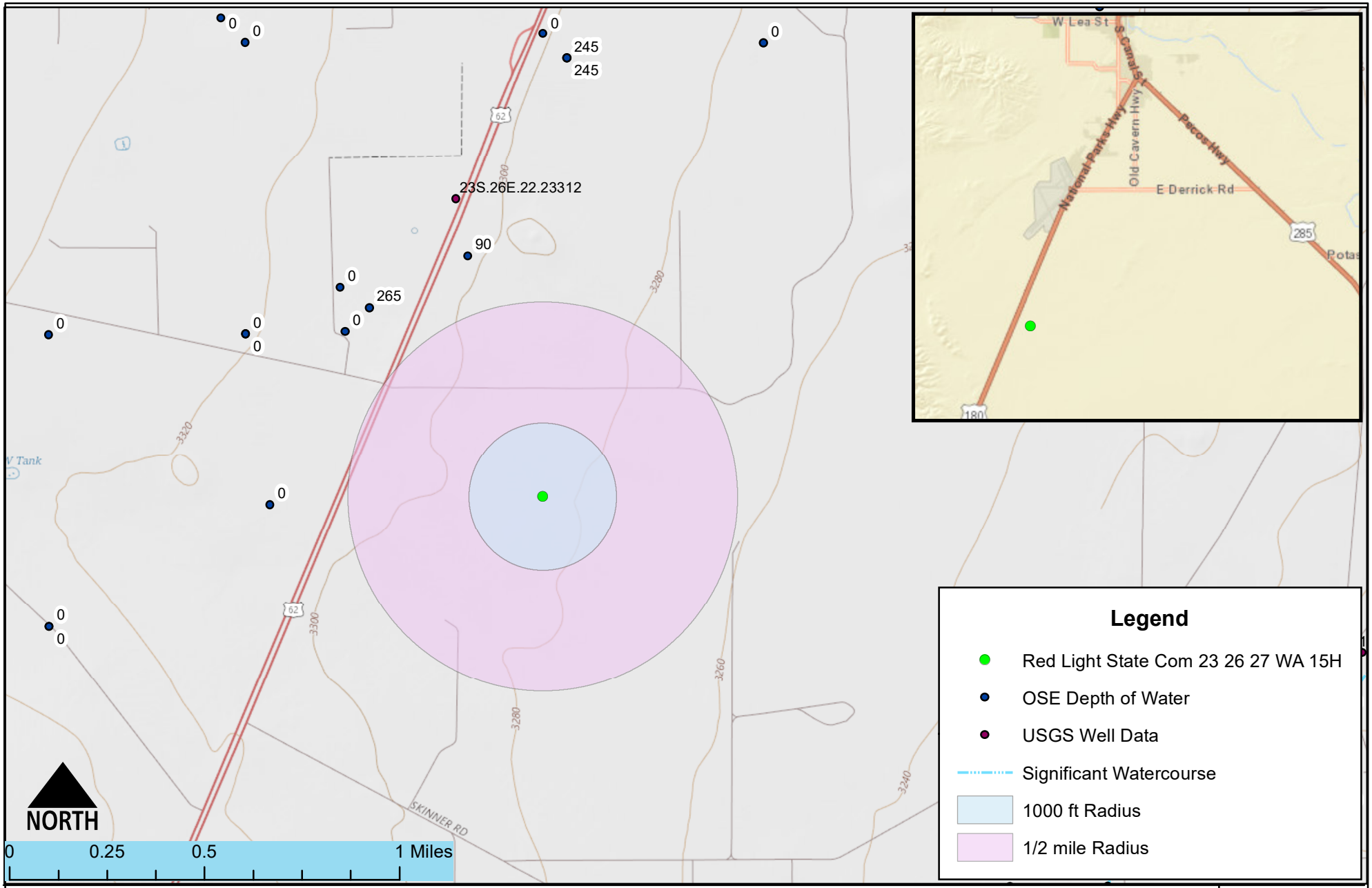
Tables:

Table 2: NMOCD Closure Criteria Justification
Table 3: Summary of Sample Results

Appendices:

Appendix A: Form C141 Initial and Final
Appendix B: NMOSE Wells Report
Appendix C: Sampling Protocol, Field Notes, and Photolog
Appendix D: Laboratory Analytical Reports

FIGURES



Vicinity and Well Head Protection Map
Red Light State Com 23 26 27 WA 15H - Marathon
S 27-T23S-R26E, New Mexico

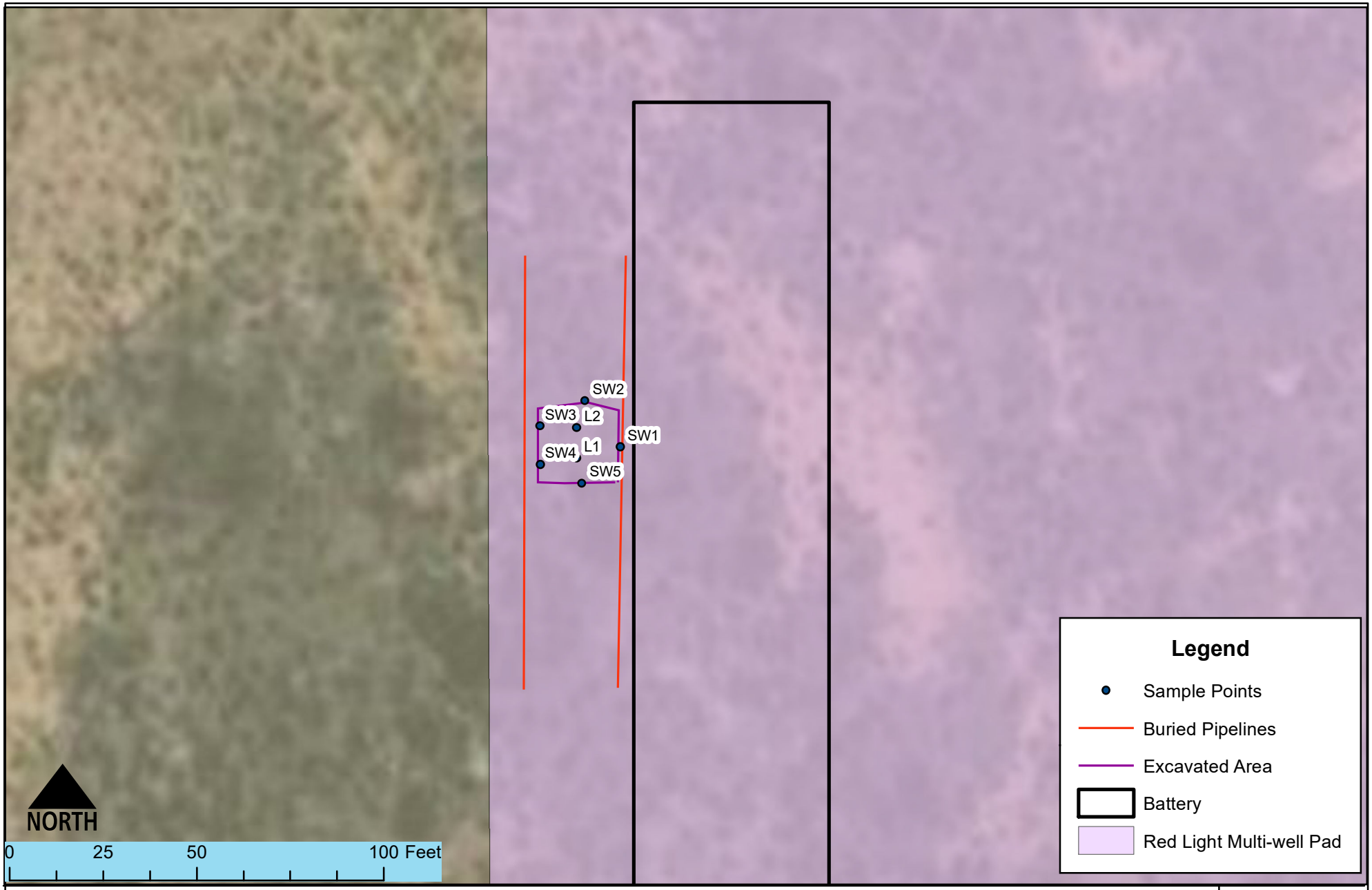
Figure 1

Date Saved: 8/1/2018

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Heather Patterson
Checked
Approved

SMA
201 South Halagueña Street
Carlsbad, New Mexico 88221
(575) 689-7040
www.soudermiller.com
Serving the Southwest & Rocky Mountains



Site and Sample Location Map
Red Light State Com 23 26 27 WA 15H - Marathon
S 27-T23S-R26E, New Mexico

Figure 2

Date Saved: 10/1/2018

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Heather Patterson
Checked
Approved

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TABLES

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	>100	NMOSE/USGS
Hortizontal Distance From All Water Sources Within 1/2 Mile (ft)	>1/2 mile	Figure 1/Topo maps
Hortizontal Distance to Nearest Significant Watercourse (ft)	>1/2 mile	Figure 1/Topo maps

Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC)						
Depth to Groundwater		**Closure Criteria (units in mg/kg)**				
		Chloride *numerical limit or background, whichever is greater	**TPH**	**GRO + DRO**	**BTEX**	**Benzene**
< 50' BGS		600	100		50	10
51' to 100'		10000	2500	1000	50	10
>100'	x	20000	2500	1000	50	10
Surface Water	**yes or no**	**if yes, then**				
<300' from continuously flowing watercourse or other significant watercourse?	no	600	100		50	10
<200' from lakebed, sinkhole or playa lake?	no					
Water Well or Water Source						
<500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	no					
<1000' from fresh water well or spring?	no					
Human and Other Areas						
<300' from an occupied permanent residence, school, hospital, institution or church?	no					
within incorporated municipal boundaries or within a defined municipal fresh water well field?	no					
<100' from wetland?	no					
within area overlying a subsurface mine	no					
within an unstable area?	no					
within a 100-year floodplain?	no					

Red Light State Com 23 26 27 WA 15H

Table 3.

Sample Number on Figure 2	Sample Date	Depth (feet bgs)	Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- Field Screens (ppm)	Cl- Laboratory mg/Kg
NMOCD Closure Criteria				50 mg/Kg	10 mg/Kg				1000/2500		20,000
L1	7/24/2018	1	excavated	<0.23	<0.024	<4.9	1700	660	2360	--	3200
	8/29/2018	1.5	in-situ	<0.23	<0.024	<4.9	<9.9	<50	<65	343	570
L2	8/29/2018	1.5	in-situ	<0.23	<0.023	<4.6	<9.9	<49	<64	<237	270
SW1	7/24/2018	0-1.5	in-situ	--	--	--	--	--	--	287	390
SW2	7/24/2018	0-1.5	in-situ	--	--	--	--	--	--	<237	130
SW3	7/24/2018	0-1.5	in-situ	--	--	--	--	--	--	<237	<30
SW4	7/24/2018	0-1.5	in-situ	--	--	--	--	--	--	<237	57
SW5	7/24/2018	0-1.5	in-situ	--	--	--	--	--	--	<237	180

"--" = Not Analyzed

APPENDIX A
FORM C141 INITIAL AND FINAL

RECEIVED

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

MAY 21 2018
DISTRICT II-ARTESIA O.C.D.

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1814330841

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Marathon Oil Company 372098	Contact Callie Karrigan
Address 5555 San Felipe Street, Houston, Texas 77056	Telephone No. 405-202-1028(cell) 575-297-0956 (office)
Facility Name Red Light State Com 23 26 27 WA 15H	Facility Type Oil well

Surface Owner: fee	Mineral Owner: fee	API No. 30-015-44491

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	27	23S	26E	300	North	804	East	Eddy

Latitude 32.28176894 **Longitude** -104.27435190 NAD83

NATURE OF RELEASE

Type of Release: produced water	Volume of Release 29 bbls	Volume Recovered 20 bbls
Source of Release: gun barrel tank	Date and Hour of Occurrence 05/06/2018 4:40 am	Date and Hour of Discovery 05/06/2018 4:40 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Eddy County – Mike Bratcher, SLO – Ryan Mann	
By Whom? Callie Karrigan	Date and Hour 05/06/2018 5:25 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*
Not applicable.

Describe Cause of Problem and Remedial Action Taken.*
At approximately 4:40 am, Flowback Personnel went to do a 15 minute strap and shut the flow. When finished, the Flowback Operator forgot to open the discharge valve on the gun barrel. Approximately 29 barrels of produced water released from the water gun barrel tank, with 9 barrels released outside of lined containment due to overspray.

Describe Area Affected and Cleanup Action Taken.*
Standing fluids were recovered via vac truck and the liner was pressure washed. Once flowback equipment is removed, samples will be taken to determine the vertical extent of the release. Affected material will then be removed and taken to R360 for disposal and backfilled.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Callie Karrigan	OIL CONSERVATION DIVISION	
Printed Name: Callie Karrigan	Signed By Mike Bratcher Approved by Environmental Specialist:	
Title: HES Professional	Approval Date: 5/22/18	Expiration Date: N/A
E-mail Address: cnkarrigan@marathonoil.com	Conditions of Approval: See attached	Attached ☐ 2RP-4764
Date: 05/21/2018 Phone: 405-202-1028 (cell) 575-297-0956 (office)		

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 5/21/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4764 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 6/21/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	2RP-4764
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian	OGRID 372098
Contact Name Callie Karrigan	Contact Telephone 405-202-1028 (cell) 575-297-0956 (office)
Contact email cnkarrigan@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 5555 San Felipe St, Houston Texas 77056	

Location of Release Source

Latitude 32.281768 Longitude -104.27435

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Red Light State Com 23 26 27 WA 15H	Site Type Oil and Gas Production Facilities
Date Release Discovered 5/6/2018	API# *(if applicable)* 30-015-44491

Unit Letter	Section	Township	Range	County
A	27	23S	26E	Eddy

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (*Name:*)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 29	Volume Recovered (bbls) 20
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

At approximately 4:40 am, flowback personnel went to do a 15 minute strap and shut the flow. When finished, the flowback operator forgot to open the discharge valve on the gun barrel. Approximately 29 barrels of produced water was released from the gun barrel tank, with 9 barrels release outside of lined containment due to overspray.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-4764
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Amount of fluid

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Yes, by Callie Karrigan to Mike Btatcher and Ryan Mann on 5/6/2018 at 5:25 pm.

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: __Callie Karrigan_____ Title: _____HES Professional_____

Signature: _*Callie Karrigan*_____ Date: _9/25/18_____

email: ___cnkarrigan@marathonoil.com_____ Telephone: __575-297-0956_____

OCD Only

Received by: _____ Date**:** _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-4764
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____Callie Karrigan_____ Title: _____HES Professional_____

Signature: *Callie Karrigan* Date: __9/25/18_____

email: __cnkarrigan@marathonoil.com_____ Telephone: _____575-297-0956_____

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____
__

APPENDIX B
NMOSE WELLS REPORT

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 01463		C	ED	2	2	3	22	23S	26E	567599	3572678*	888	295	265	30
C 00535	C	CUB	ED	2	1	1	27	23S	26E	567195	3571862*	935	1903		
C 01022		C	ED	4	3	2	22	23S	26E	568005	3572894*	939	121	90	31
C 00341	C	CUB	ED		1	3	22	23S	26E	567090	3572566*	1198	1881		
C 00352	C	CUB	ED		1	3	22	23S	26E	567090	3572566*	1198	1867		
C 01015		C	ED	4	4	4	15	23S	26E	568408	3573714*	1774	318	245	73
C 03238		C	ED	4	4	4	15	23S	26E	568408	3573714*	1774	323	245	78
C 00367	C	CUB	ED		3	2	28	23S	26E	566286	3571353*	1937	1909		
C 00537		C	ED		1	4	21	23S	26E	566277	3572558*	1941	400		
C 01246 AC-S		CUB	ED	3	1	1	35	23S	26E	568730	3570098	1959	350		
C 00247		C	ED	4	2	4	15	23S	26E	568406	3574119*	2175	315	230	85
C 01639		C	ED	4	2	4	15	23S	26E	568406	3574119*	2175	300	70	230
C 04113 POD1		CUB	ED	2	3	1	35	23S	26E	568836	3569881	2199	255	195	60
C 01140		C	ED	1	3	3	15	23S	26E	566980	3573870*	2225	325		
C 04113 POD2		CUB	ED	4	3	1	35	23S	26E	568838	3569680	2389	289	278	11
C 01724		C	ED				34	23S	26E	567726	3569555*	2439	320		
C 02833		CUB	ED	1	1	1	36	23S	26E	570258	3570303*	2702	229		
C 01572		C	ED	3	3	3	13	23S	26E	570245	3573761*	2780	215		
C 02040		C	ED	3	3	3	13	23S	26E	570245	3573761*	2780	264	185	79
C 02658 POD2		C	ED	3	3	3	13	23S	26E	570245	3573761*	2780	252	211	41
C 04051 POD1		C	ED	1	3	3	35	23S	26E	568653	3569112	2897	294	233	61
C 01733		C	ED	1	3	3	13	23S	26E	570245	3573961*	2913	247	197	50
C 01743		C	ED	1	3	3	13	23S	26E	570245	3573961*	2913	250	196	54
C 02442		C	ED	1	3	3	13	23S	26E	570245	3573961*	2913	276	200	76

***UTM location was derived from PLSS - see Help**

APPENDIX C
SAMPLING PROTOCOL,
FIELD NOTES, & AND PHOTO LOG

Sampling Protocol

Representatives from SMA chose the Judgmental Sampling Method as described in EPA's Final Sampling Guidance for SW-846, 2002 to adequately quantify contaminant concentrations on the Red Light State Com 23 26 27 WA 15H Location. The utility of this particular method functions on the sufficient knowledge of the contaminant, which we possess. This design is also useful when identifying the composition of a release, which we have documented. In addition, this sampling design was chosen for this project because of the locations uniform soil type, the release being contained within a bermed area thus reducing the possibility of migration, and the several operational considerations (such as the liner within the battery and the construction of a new facility) that precluded the implementation of a different statistical design.

The soil samples were collected in laboratory supplied containers in accordance with this sampling protocol, immediately placed on ice and sent under standard chain-of-custody protocols to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico for analysis. A total of eight (8) samples were collected for laboratory analysis for total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D.

Sampling Analysis Field Quality Assurance Procedures

A unique sample numbering was used to identify each sample collected and designated for on-site and off-site laboratory analysis. The purpose of this numbering scheme was to provide a tracking system for the retrieval of analytical and field data on each sample. Sample identification numbers were recorded on sample labels or tags, field notes, chain-of-custody records (COC) and all other applicable documentation used during the project. Sample labels were affixed to all sample containers during sampling activities. Information was recorded on each sample container label at the time of sample collection. The information recorded on the labels were as follows: sample identification number; sample type (discrete or composite); site name and area/location number; analysis to be performed; type of chemical preservative present in container; date and time of sample collection; and sample collector's name and initials. All samples were packed in ice in an approved rigid body container, custody sealed signed and shipped to the appropriate laboratory via insured currier service.

COC procedures implemented for the project provided documentation of the handling of each sample from the time of collection until completion of laboratory analysis. A COC form serves as a legal record of possession of the sample. A sample is considered to be under custody if one or more of the following criteria are met: the sample is in the sampler's possession; the sample is in the sampler's view after being in possession; the sample was in the sampler's possession and then was placed into a locked area to prevent tampering; and/or the sample is in a designated secure area. Custody was documented throughout the project field sampling activities by a chain-of custody form initiated each day during which samples are collected. Container custody seals placed on either individual samples or on the rigid body container were used to ensure that no sample tampering occurs between the time the samples are placed into the containers and the time the containers are opened for analysis at the laboratory. Container custody seals were signed and dated by the individual responsible for completing the COC form contained within the container.

SMA Field Screening

Location Name:	Date:
Red Light 15H	7/24/18

Sample Name:	Soil Type:	Depth (BGS)	Collection Time:	EC (ppm)	Temp (°C)	PID Reading	PF
SW1				0.37	35.2°		
SW2				0.27	35.8°		
SW3				0.30	36.5		
SW4				0.22	35.9		
SW5				0.26	38.3		

Field Screening

Location Name: Red Light 15

Date: 8/29/18

Sample Name:	Soil Type:	Depth (BGS)	Collection Time:	EC (ppm)	Temp (°C)	PID Reading	PF
L1	Caliche	1.5	9:22	0.41	26.7°		
L2	caliche	1.5	9:38	0.25	25.1°		

Photo Log

Photo Taken August 29, 2018

Facing Southeast

32.281755, -104.275553

Photo Taken August 29, 2018

Facing East

32.281772, -104.275571

APPENDIX D

LABORATORY ANALYTICAL REPORTS

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 03, 2018

Austin Weyant

Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: Redlight OrderNo.: 1807E41

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 6 sample(s) on 7/26/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1807E41**
Date Reported: **8/3/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-1
Project: Redlight
Collection Date: 7/24/2018 10:30:00 AM
Lab ID: 1807E41-001 **Matrix:** SOIL **Received Date:** 7/26/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	3200	150		mg/Kg	100	8/1/2018 10:14:49 AM	39477
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	1700	99		mg/Kg	10	8/1/2018 10:25:11 PM	39489
Motor Oil Range Organics (MRO)	660	500		mg/Kg	10	8/1/2018 10:25:11 PM	39489
Surr: DNOP	0	50.6-138	S	%Rec	10	8/1/2018 10:25:11 PM	39489
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/31/2018 1:13:24 AM	39455
Surr: BFB	89.0	15-316		%Rec	1	7/31/2018 1:13:24 AM	39455
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.098		mg/Kg	1	7/31/2018 1:13:24 AM	39455
Benzene	ND	0.024		mg/Kg	1	7/31/2018 1:13:24 AM	39455
Toluene	ND	0.049		mg/Kg	1	7/31/2018 1:13:24 AM	39455
Ethylbenzene	ND	0.049		mg/Kg	1	7/31/2018 1:13:24 AM	39455
Xylenes, Total	ND	0.098		mg/Kg	1	7/31/2018 1:13:24 AM	39455
Surr: 4-Bromofluorobenzene	99.3	80-120		%Rec	1	7/31/2018 1:13:24 AM	39455

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW1
Project: Redlight
Collection Date: 7/24/2018 11:00:00 AM
Lab ID: 1807E41-002
Matrix: SOIL
Received Date: 7/26/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	390	30		mg/Kg	20	7/29/2018 2:20:36 PM	39466

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW2
Project: Redlight
Collection Date: 7/24/2018 11:20:00 AM
Lab ID: 1807E41-003
Matrix: SOIL
Received Date: 7/26/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	130	30		mg/Kg	20	7/29/2018 2:57:49 PM	39466

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW3
Project: Redlight
Collection Date: 7/24/2018 12:00:00 PM
Lab ID: 1807E41-004 **Matrix:** SOIL **Received Date:** 7/26/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	7/29/2018 3:10:13 PM	39466

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW4
Project: Redlight
Collection Date: 7/24/2018 12:15:00 PM
Lab ID: 1807E41-005
Matrix: SOIL
Received Date: 7/26/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	57	30		mg/Kg	20	7/29/2018 3:22:37 PM	39466

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: SW5
Project: Redlight
Collection Date: 7/24/2018 12:45:00 PM
Lab ID: 1807E41-006
Matrix: SOIL
Received Date: 7/26/2018 11:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	180	30		mg/Kg	20	7/29/2018 3:35:02 PM	39466

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807E41**

03-Aug-18

Client: Souder, Miller & Associates

Project: Redlight

Sample ID	**MB-39466**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**39466**	RunNo:	**53064**					
Prep Date:	**7/28/2018**	Analysis Date:	**7/29/2018**	SeqNo:	**1745549**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-39466**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**39466**	RunNo:	**53064**					
Prep Date:	**7/28/2018**	Analysis Date:	**7/29/2018**	SeqNo:	**1745550**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	90	110			

Sample ID	**MB-39477**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**39477**	RunNo:	**53089**					
Prep Date:	**7/30/2018**	Analysis Date:	**7/30/2018**	SeqNo:	**1746592**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-39477**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**39477**	RunNo:	**53089**					
Prep Date:	**7/30/2018**	Analysis Date:	**7/30/2018**	SeqNo:	**1746593**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807E41**

03-Aug-18

Client: Souder, Miller & Associates

Project: Redlight

Sample ID	**MB-39457**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID: **39457**			RunNo: **53063**					
Prep Date:	**7/27/2018**	Analysis Date: **7/31/2018**			SeqNo: **1746381**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		7.9		10.00		78.9	50.6	138			

Sample ID	**LCS-39457**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID: **39457**			RunNo: **53063**					
Prep Date:	**7/27/2018**	Analysis Date: **7/31/2018**			SeqNo: **1746382**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		3.8		5.000		75.0	50.6	138			

Sample ID	**MB-39489**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID: **39489**			RunNo: **53063**					
Prep Date:	**7/30/2018**	Analysis Date: **8/1/2018**			SeqNo: **1747164**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		ND	10								
Motor Oil Range Organics (MRO)		ND	50								
Surr: DNOP		8.5		10.00		85.0	50.6	138			

Sample ID	**LCS-39489**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID: **39489**			RunNo: **53063**					
Prep Date:	**7/30/2018**	Analysis Date: **8/1/2018**			SeqNo: **1747165**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		47	10	50.00	0	93.7	70	130			
Surr: DNOP		4.0		5.000		79.6	50.6	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807E41**

03-Aug-18

Client: Souder, Miller & Associates

Project: Redlight

Sample ID	**MB-39454**	SampType: **MBLK**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID: **39454**			RunNo: **53075**					
Prep Date:	**7/27/2018**	Analysis Date: **7/30/2018**			SeqNo: **1745875**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		910		1000		91.4	15	316			

Sample ID	**LCS-39454**	SampType: **LCS**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID: **39454**			RunNo: **53075**					
Prep Date:	**7/27/2018**	Analysis Date: **7/30/2018**			SeqNo: **1745876**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		1000		1000		104	15	316			

Sample ID	**MB-39455**	SampType: **MBLK**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID: **39455**			RunNo: **53075**					
Prep Date:	**7/27/2018**	Analysis Date: **7/30/2018**			SeqNo: **1745897**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)		ND	5.0								
Surr: BFB		940		1000		94.1	15	316			

Sample ID	**LCS-39455**	SampType: **LCS**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID: **39455**			RunNo: **53075**					
Prep Date:	**7/27/2018**	Analysis Date: **7/30/2018**			SeqNo: **1745898**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)		29	5.0	25.00	0	114	75.9	131			
Surr: BFB		1100		1000		108	15	316			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807E41**

03-Aug-18

Client: Souder, Miller & Associates

Project: Redlight

Sample ID **MB-39454**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **39454**	RunNo: **53075**
Prep Date: **7/27/2018**	Analysis Date: **7/30/2018**	SeqNo: **1745919** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID **LCS-39454**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **39454**	RunNo: **53075**
Prep Date: **7/27/2018**	Analysis Date: **7/30/2018**	SeqNo: **1745920** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID **MB-39455**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **39455**	RunNo: **53075**
Prep Date: **7/27/2018**	Analysis Date: **7/30/2018**	SeqNo: **1745932** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID **LCS-39455**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **39455**	RunNo: **53075**
Prep Date: **7/27/2018**	Analysis Date: **7/30/2018**	SeqNo: **1745933** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.88	0.10	1.000	0	87.7	70.1	121			
Benzene	0.93	0.025	1.000	0	93.5	77.3	128			
Toluene	0.97	0.050	1.000	0	96.5	79.2	125			
Ethylbenzene	0.95	0.050	1.000	0	94.8	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	96.7	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-CARLSBAD Work Order Number: 1807E41 RcptNo: 1

Received By: Isaiah Ortiz 7/26/2018 11:00:00 AM IO

Completed By: Ashley Gallegos 7/26/2018 5:23:18 PM AG

Reviewed By: 7/27/18

Labeled by: ENM 7/27/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

ENM 7/27/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			

Chain-of-Custody Record

Client: SMA - Carlsbad

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other ________

☐ EDD (Type) ________

Turn-Around Time:
☐ Standard ☑ Rush 5 day

Project Name: Redlight

Project #:

Project Manager: Austin Weyant

Sampler: LAA

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.2-1.0(CF) 2.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1807E41	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F, Cl (circled), NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
7/24/18	10:30	Soil	C1-1	4oz		-001	X		X					X								
	11:10		SW1			-002								X								
	11:20		SW2			-003								X								
	12:00		SW3			-004								X								
	1215		SW4			-005								X								
	1245		SW5			-006								X								

Date	Time	Relinquished by:	Received by:	Date	Time
7/25/18	1400	[signature]	[signature]	7/25/18	1400
7/25/18	1900	[signature]	[signature] courier	7/26/18	11:00

Remarks: Marathon

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 11, 2018

Austin Weyant

Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: Red Light OrderNo.: 1808I68

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/31/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-1.5
Project: Red Light
Collection Date: 8/29/2018 9:22:00 AM
Lab ID: 1808I68-001 **Matrix:** SOIL
Received Date: 8/31/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	570	30		mg/Kg	20	9/7/2018 1:08:58 PM	40207
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/6/2018 7:49:17 AM	40136
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/6/2018 7:49:17 AM	40136
Surr: DNOP	108	50.6-138		%Rec	1	9/6/2018 7:49:17 AM	40136
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/4/2018 4:55:30 PM	40101
Surr: BFB	94.9	15-316		%Rec	1	9/4/2018 4:55:30 PM	40101
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	9/4/2018 4:55:30 PM	40101
Toluene	ND	0.049		mg/Kg	1	9/4/2018 4:55:30 PM	40101
Ethylbenzene	ND	0.049		mg/Kg	1	9/4/2018 4:55:30 PM	40101
Xylenes, Total	ND	0.098		mg/Kg	1	9/4/2018 4:55:30 PM	40101
Surr: 4-Bromofluorobenzene	90.7	80-120		%Rec	1	9/4/2018 4:55:30 PM	40101

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L2-1.5
Project: Red Light
Collection Date: 8/29/2018 9:38:00 AM
Lab ID: 1808I68-002 **Matrix:** SOIL **Received Date:** 8/31/2018 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	270	30		mg/Kg	20	9/7/2018 1:21:23 PM	40207
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/6/2018 8:11:24 AM	40136
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/6/2018 8:11:24 AM	40136
Surr: DNOP	102	50.6-138		%Rec	1	9/6/2018 8:11:24 AM	40136
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/5/2018 1:05:15 AM	40101
Surr: BFB	89.7	15-316		%Rec	1	9/5/2018 1:05:15 AM	40101
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	9/5/2018 1:05:15 AM	40101
Toluene	ND	0.046		mg/Kg	1	9/5/2018 1:05:15 AM	40101
Ethylbenzene	ND	0.046		mg/Kg	1	9/5/2018 1:05:15 AM	40101
Xylenes, Total	ND	0.093		mg/Kg	1	9/5/2018 1:05:15 AM	40101
Surr: 4-Bromofluorobenzene	86.4	80-120		%Rec	1	9/5/2018 1:05:15 AM	40101

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1808I68**

11-Sep-18

Client: Souder, Miller & Associates

Project: Red Light

Sample ID	**MB-40207**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**40207**	RunNo:	**54025**					
Prep Date:	**9/7/2018**	Analysis Date:	**9/7/2018**	SeqNo:	**1784767**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-40207**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**40207**	RunNo:	**54025**					
Prep Date:	**9/7/2018**	Analysis Date:	**9/7/2018**	SeqNo:	**1784768**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1808I68**

11-Sep-18

Client: Souder, Miller & Associates

Project: Red Light

Sample ID	**MB-40111**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID: **40111**			RunNo: **53915**					
Prep Date:	**9/4/2018**	Analysis Date: **9/5/2018**			SeqNo: **1780862**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		11		10.00		110	50.6	138			

Sample ID	**LCS-40111**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID: **40111**			RunNo: **53915**					
Prep Date:	**9/4/2018**	Analysis Date: **9/5/2018**			SeqNo: **1780884**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		5.6		5.000		113	50.6	138			

Sample ID	**MB-40136**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID: **40136**			RunNo: **53915**					
Prep Date:	**9/4/2018**	Analysis Date: **9/6/2018**			SeqNo: **1780995**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		ND	10								
Motor Oil Range Organics (MRO)		ND	50								
Surr: DNOP		10		10.00		104	50.6	138			

Sample ID	**LCS-40136**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID: **40136**			RunNo: **53915**					
Prep Date:	**9/4/2018**	Analysis Date: **9/6/2018**			SeqNo: **1780996**		Units: **mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		54	10	50.00	0	107	70	130			
Surr: DNOP		5.3		5.000		106	50.6	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1808I68**

11-Sep-18

Client: Souder, Miller & Associates

Project: Red Light

Sample ID	**MB-40101**	SampType: **MBLK**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID: **40101**		RunNo: **53896**					
Prep Date:	**8/31/2018**	Analysis Date: **9/4/2018**		SeqNo: **1778755**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	940		1000		94.2	15	316			

Sample ID	**LCS-40101**	SampType: **LCS**		TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID: **40101**		RunNo: **53896**					
Prep Date:	**8/31/2018**	Analysis Date: **9/4/2018**		SeqNo: **1778756**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	75.9	131			
Surr: BFB	1000		1000		103	15	316			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1808I68**

11-Sep-18

Client: Souder, Miller & Associates

Project: Red Light

Sample ID	**MB-40101**	SampType: **MBLK**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID: **40101**		RunNo: **53896**					
Prep Date:	**8/31/2018**	Analysis Date: **9/4/2018**		SeqNo: **1778800**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		90.7	80	120			

Sample ID	**LCS-40101**	SampType: **LCS**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID: **40101**		RunNo: **53896**					
Prep Date:	**8/31/2018**	Analysis Date: **9/4/2018**		SeqNo: **1778801**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	89.7	77.3	128			
Toluene	0.93	0.050	1.000	0	92.6	79.2	125			
Ethylbenzene	0.92	0.050	1.000	0	91.9	80.7	127			
Xylenes, Total	2.8	0.10	3.000	0	93.0	81.6	129			
Surr: 4-Bromofluorobenzene	0.89		1.000		89.2	80	120			

Sample ID	**1808I68-001AMS**	SampType: **MS**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**L1-1.5**	Batch ID: **40101**		RunNo: **53896**					
Prep Date:	**8/31/2018**	Analysis Date: **9/4/2018**		SeqNo: **1778803**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.84	0.025	1.000	0	83.8	68.5	133			
Toluene	0.89	0.050	1.000	0	88.8	75	130			
Ethylbenzene	0.89	0.050	1.000	0	89.0	79.4	128			
Xylenes, Total	2.7	0.10	3.000	0	91.2	77.3	131			
Surr: 4-Bromofluorobenzene	0.91		1.000		91.2	80	120			

Sample ID	**1808I68-001AMSD**	SampType: **MSD**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**L1-1.5**	Batch ID: **40101**		RunNo: **53896**					
Prep Date:	**8/31/2018**	Analysis Date: **9/4/2018**		SeqNo: **1778804**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.025	0.9804	0	84.5	68.5	133	1.20	20	
Toluene	0.87	0.049	0.9804	0	88.8	75	130	1.99	20	
Ethylbenzene	0.87	0.049	0.9804	0	88.8	79.4	128	2.17	20	
Xylenes, Total	2.7	0.098	2.941	0	91.4	77.3	131	1.77	20	
Surr: 4-Bromofluorobenzene	0.90		0.9804		92.2	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-CARLSBAD Work Order Number: 1808I68 RcptNo: 1

Received By: Erin Melendrez 8/31/2018 8:45:00 AM

Completed By: Michelle Garcia 8/31/2018 11:03:24 AM Michelle Garcia

Reviewed By: IO 8/31/18

LB: ENM 8/31/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑

11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

ENM 8/31/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			
2	1.9	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day turn
☐ Standard ☐ Rush

Project Name: Red Light

Project #:

Project Manager: Austin Wesant

Sampler: Heather Patterson

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1808I68	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F^-, Cl^-, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
8/29/18	9:22	Soil	L1-1.5	4oz		001	X		X					X								
"	9:38	"	L2-1.5	"		002	X		X					X								

Date: Time: Relinquished by: Received by: Date Time 8/30/18 1402

Date: 8/30/18 Time: 1900 Relinquished by: Received by: Courier ENM 8/31/18 Date 8/31/18 Time 0845

Remarks: Marathon cooler1: 2.7 cooler2: 1.9 ENM 8/31/18

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.